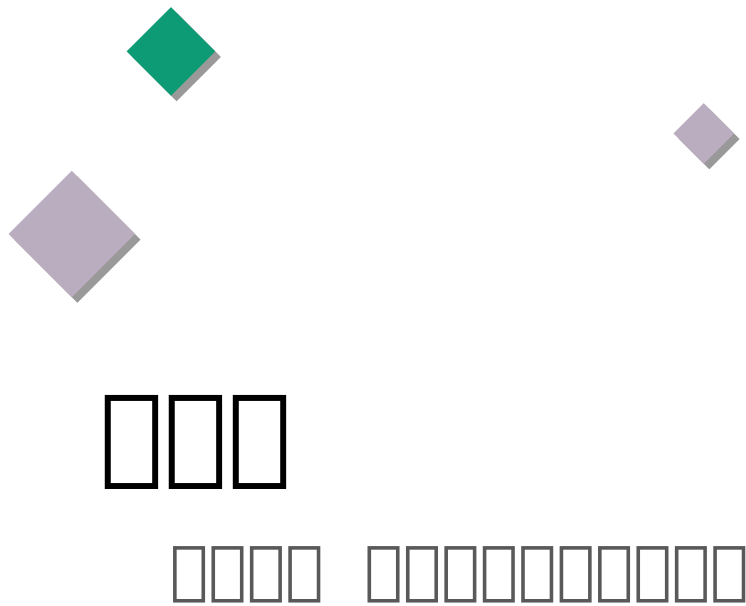
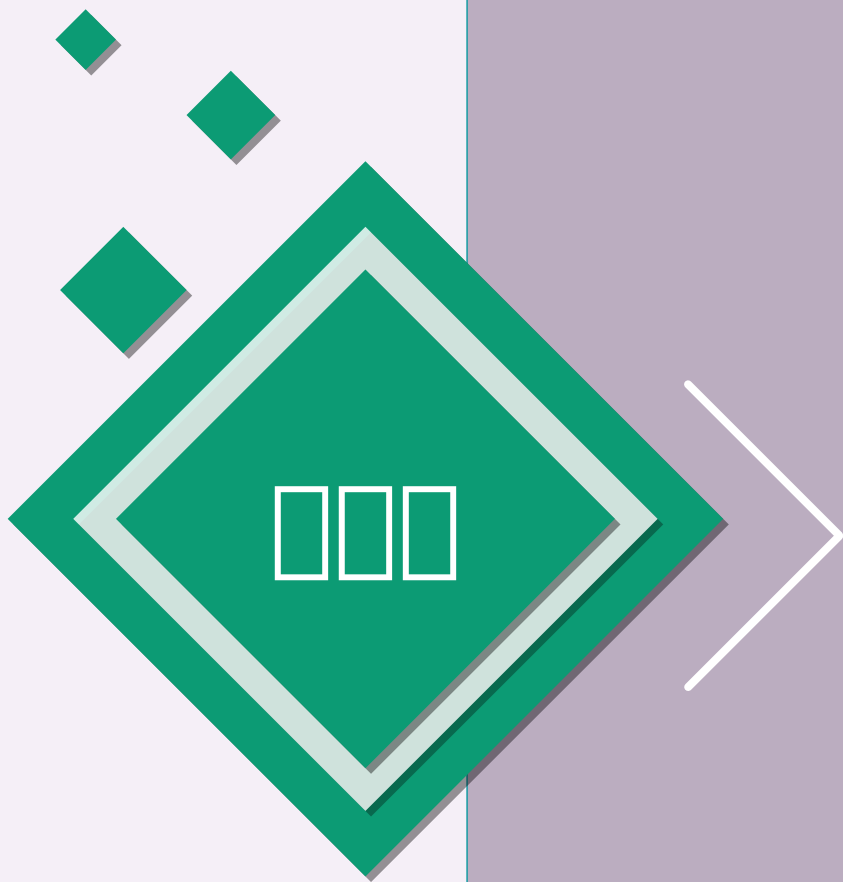
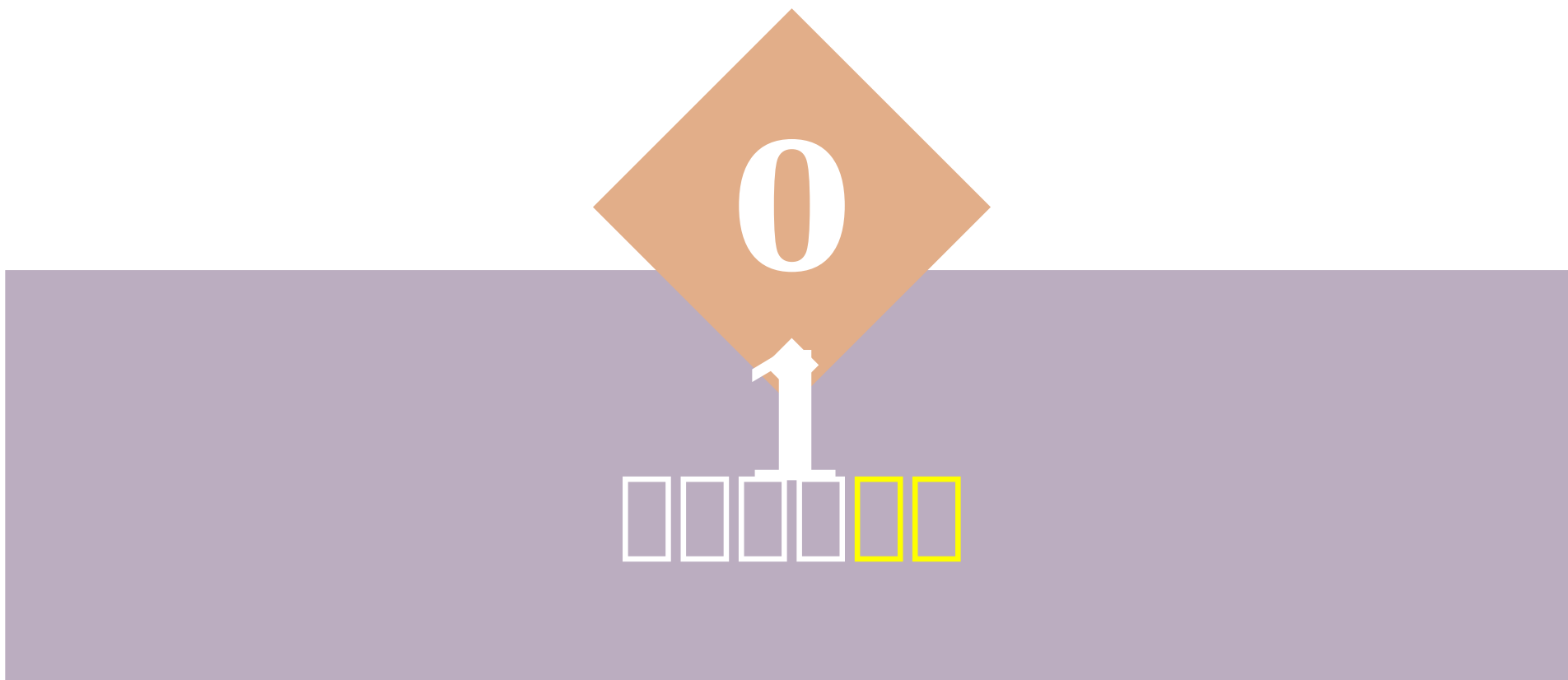
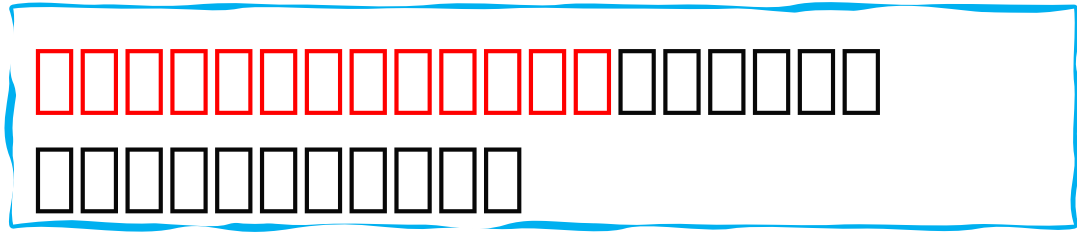
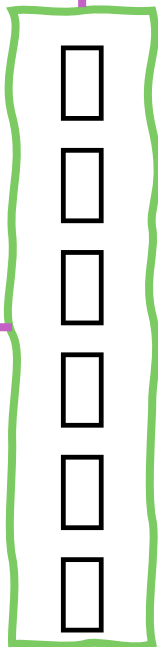
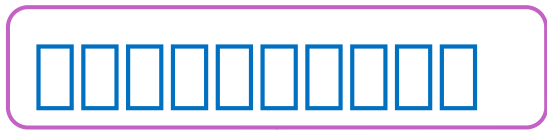
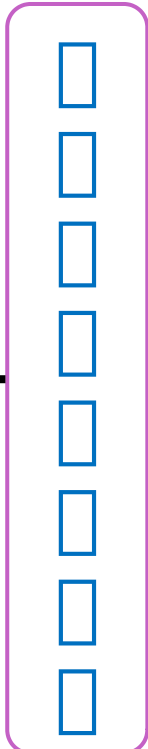
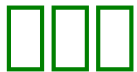
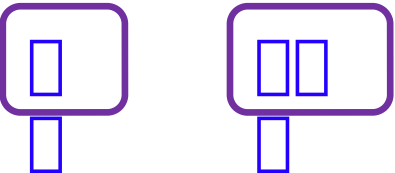
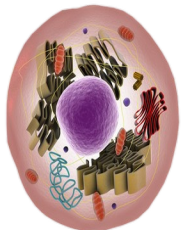
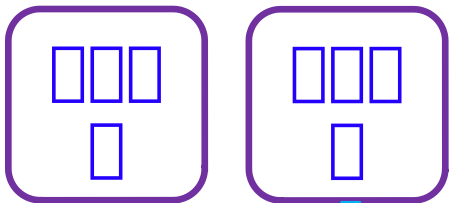


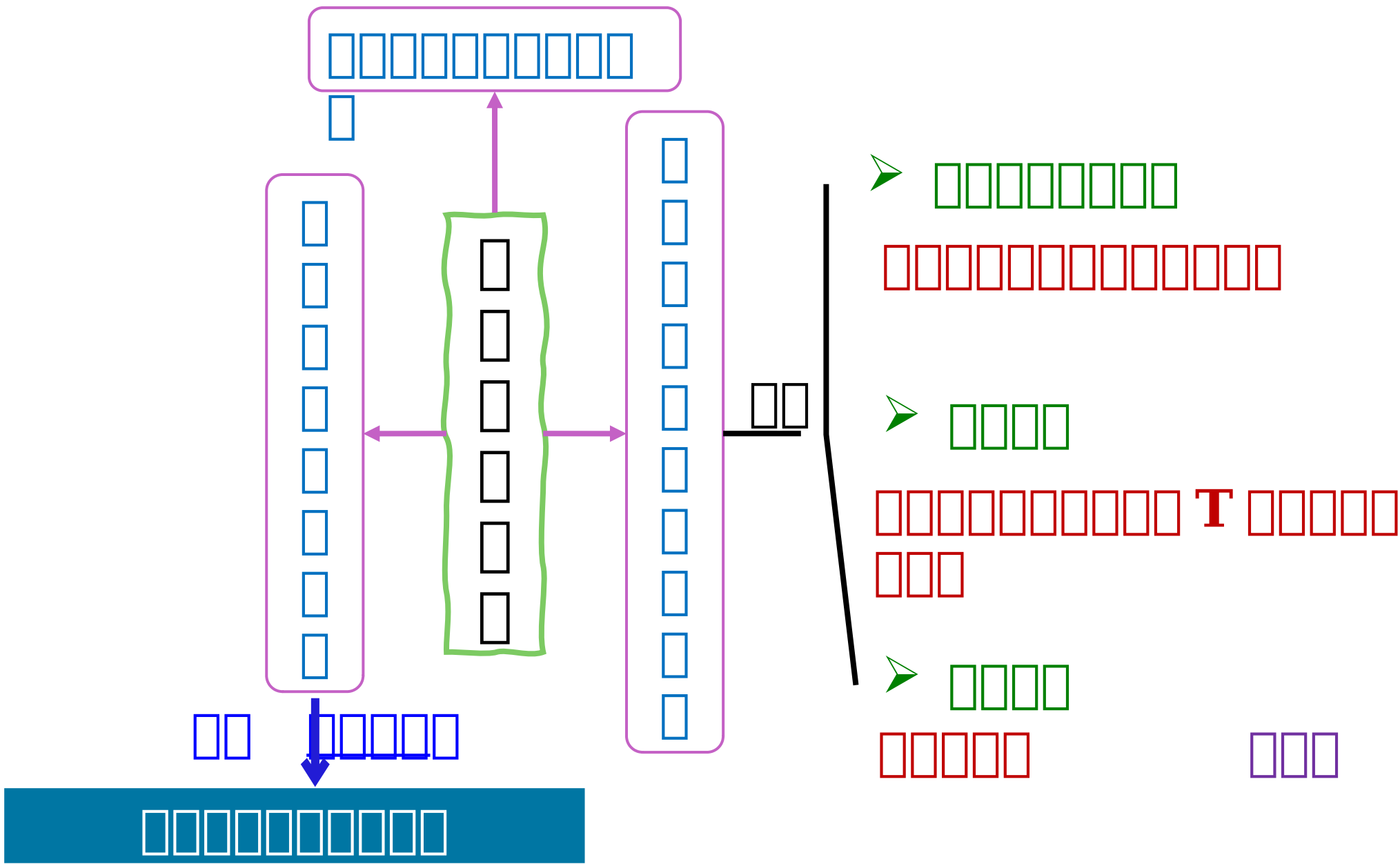


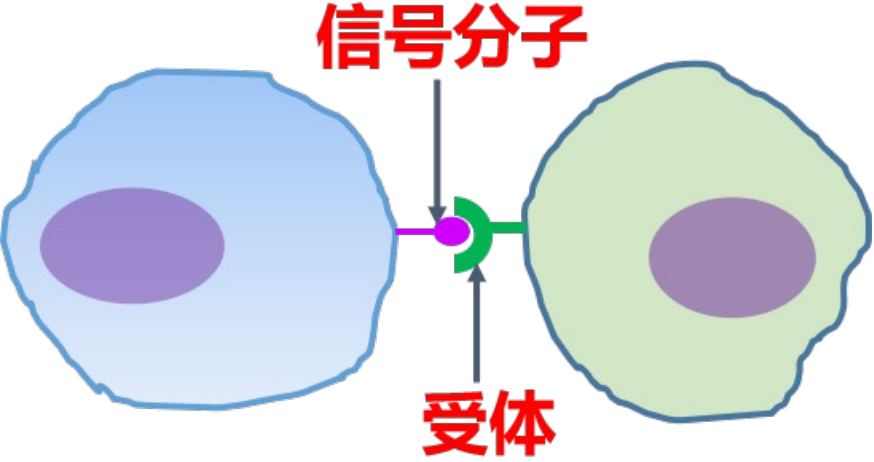
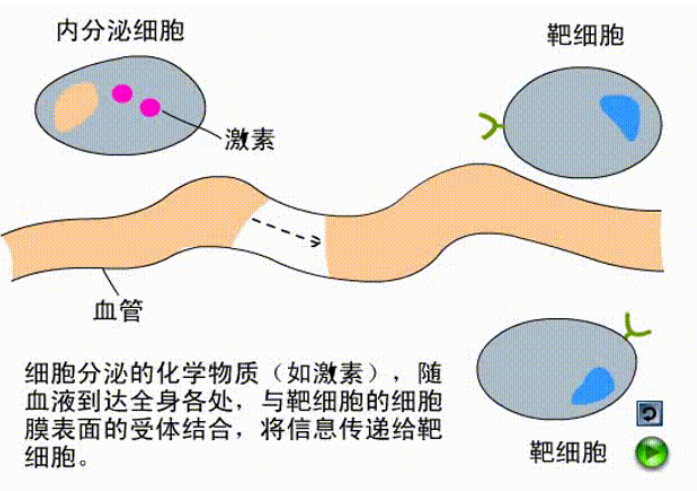






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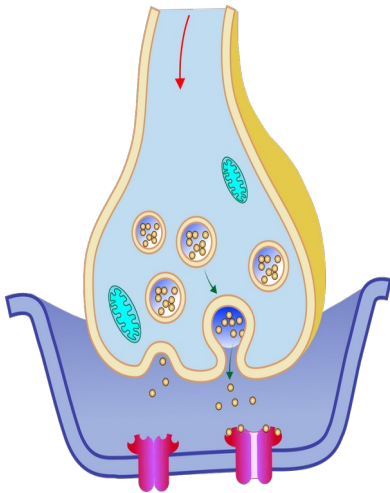




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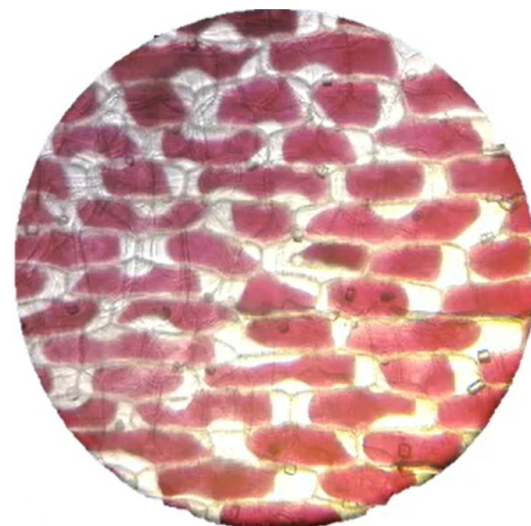
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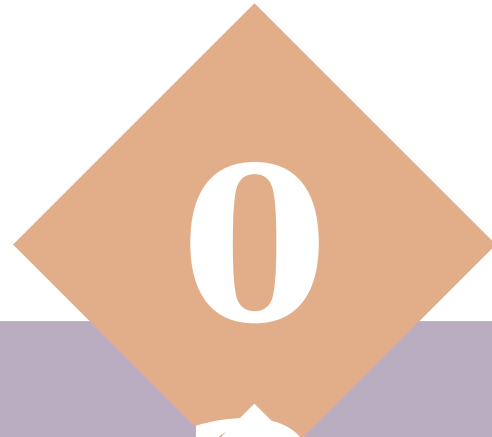
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思考：除了用染色的方法外，如何鉴定植物细胞的死活？

做**质壁分离及其复原实验**，能发生质壁分离及复原的是活细胞，否则是死细胞。





2



A row of ten empty rectangular boxes, each with a black border, intended for the student to write the names of the people they are talking to.



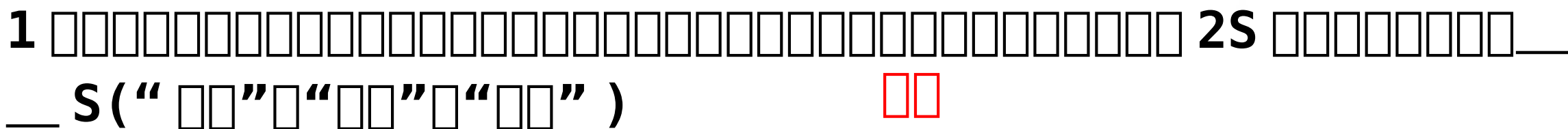
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**①**

**②**



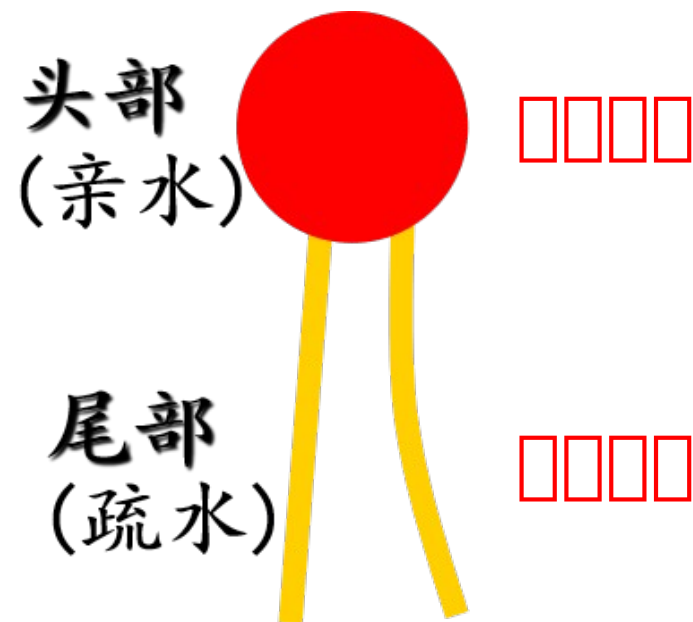
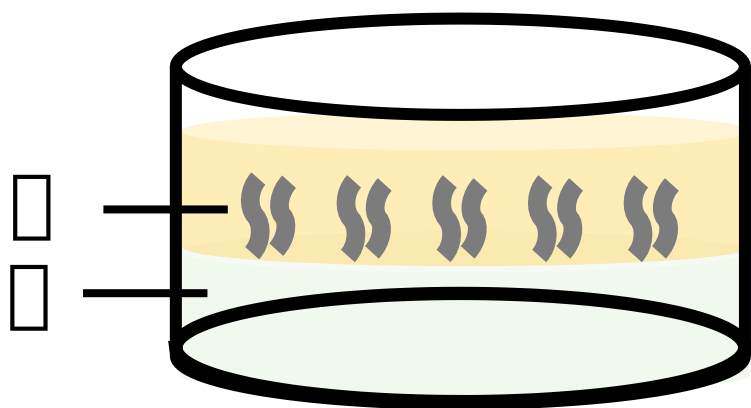


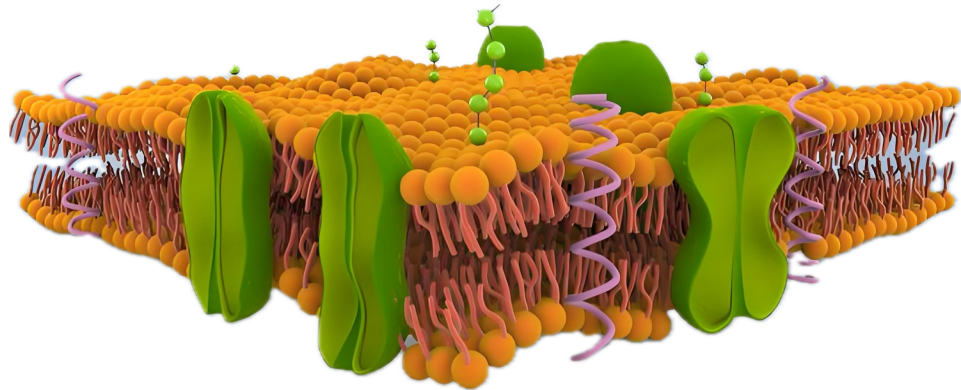
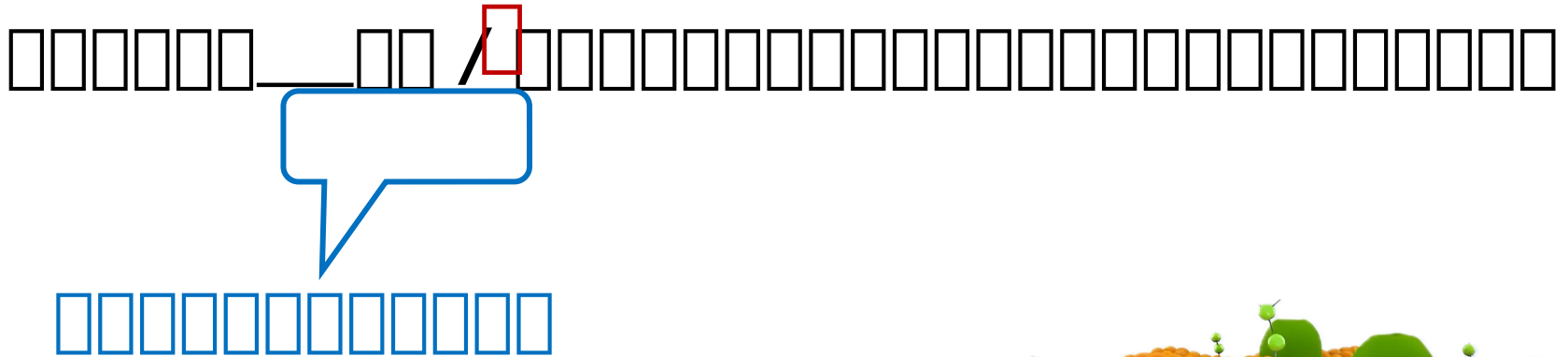
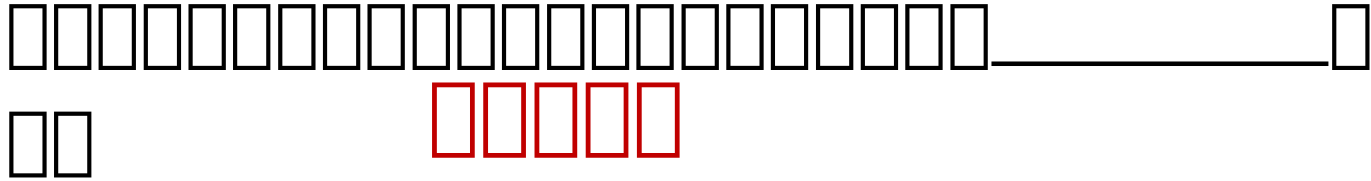
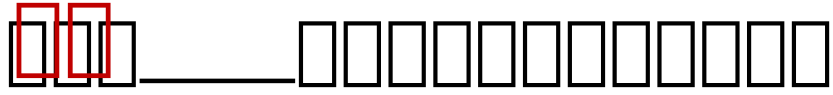
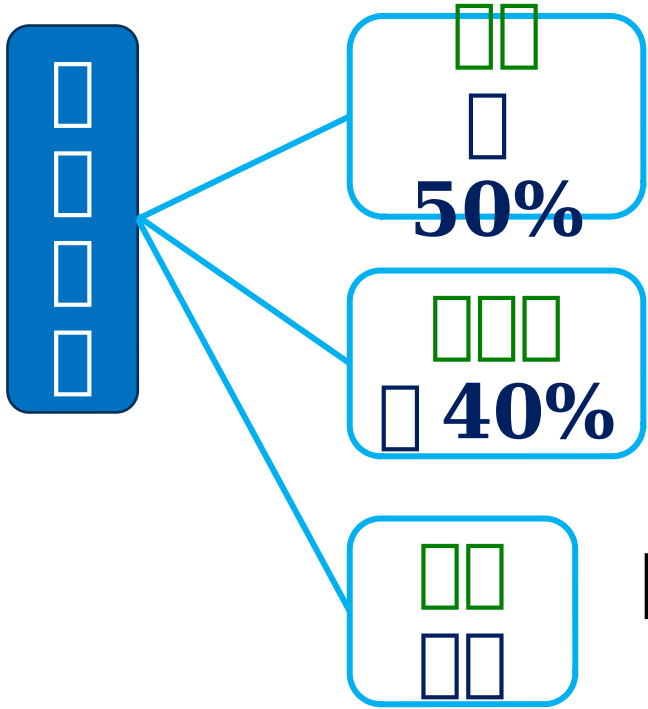
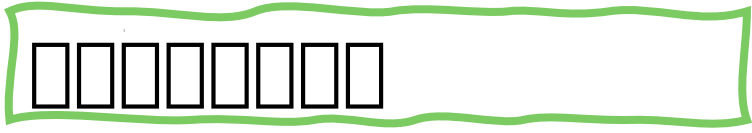


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**□“□□” )**

□□

3 □□□□□□□□□□ - □□□□□□□□□□□□□□□□□□ ?





□□□□□□□□

Q: 细胞膜的成分是一成不变的吗?

不是, 如癌变的细胞, 细胞膜表面糖蛋白减少, 甲胎蛋白和癌胚抗原增加

注意:

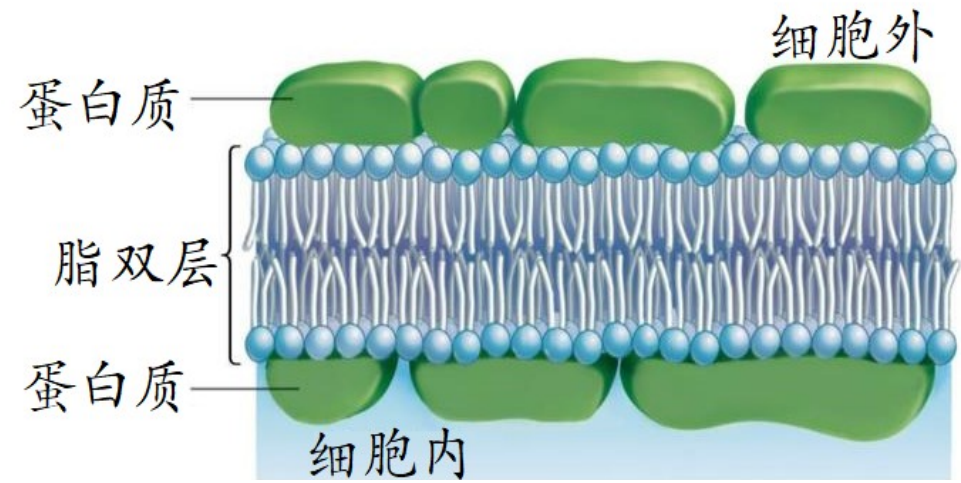
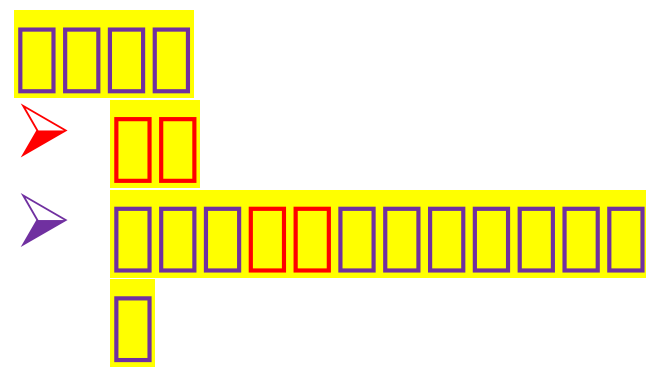
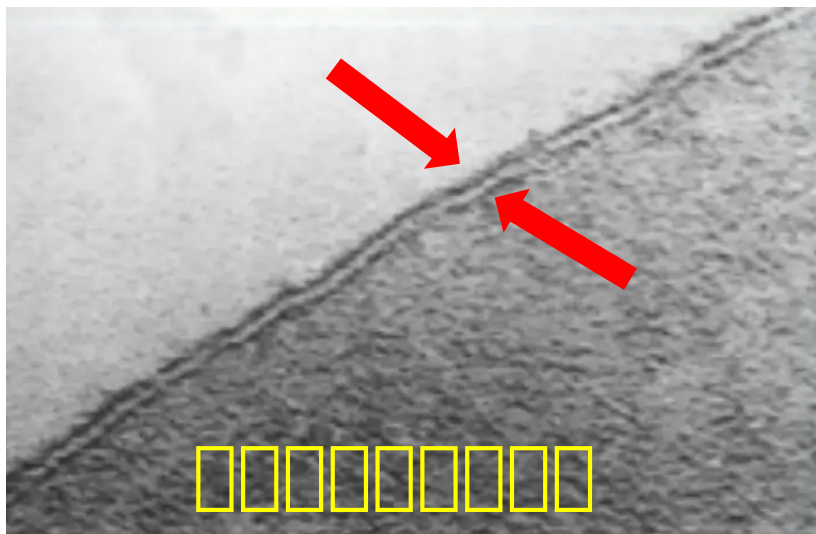
- ①组成细胞膜成分的含量并不是不可变的。
- ②不同种类的细胞, 细胞膜的成分及含量不完全相同。  
(如动物细胞膜中含有一定量的胆固醇, 而植物细胞膜中没有。)



□□□□□□□□□□

➤ □□□□□□

| 时间       | 方法                    | 现象                               | 预测或结论                                            |
|----------|-----------------------|----------------------------------|--------------------------------------------------|
| 20世纪40年代 | 有的学者推测                |                                  | <u>□□□□□</u> 覆盖在 <u>□□</u> 两边                    |
| 20世纪50年代 | 罗伯特森用 <b>电镜</b> 观察细胞膜 | 看到了细胞膜的“ <u>□ - □ - □</u> ”的三层结构 | 提出膜的三层静态结构模型：中间亮层是 <u>□□</u> ，两边暗层是 <u>□□□</u> 。 |



□□□□□□□□□□



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| 时间         | 方法                                      | 现象                                  | 预测或结论                         |
|------------|-----------------------------------------|-------------------------------------|-------------------------------|
| 20世纪60年代以后 | 新技术用于生物膜的研究                             |                                     | 发现膜蛋白有的镶嵌于脂质双分子层中             |
| 1970年      | 科学家将小鼠细胞和人融合，用绿色和红色荧光染料分别标记鼠和人细胞表面的蛋白质。 | 融合细胞一半发绿色荧光、一半发红色荧光，37℃40min后荧光均匀分布 | 证明细胞膜具有□□□。<br>□□□□□□□□□□□□□□ |
| 1972年      |                                         |                                     | 桑格、尼克森提出□□□□□□□□□□。           |

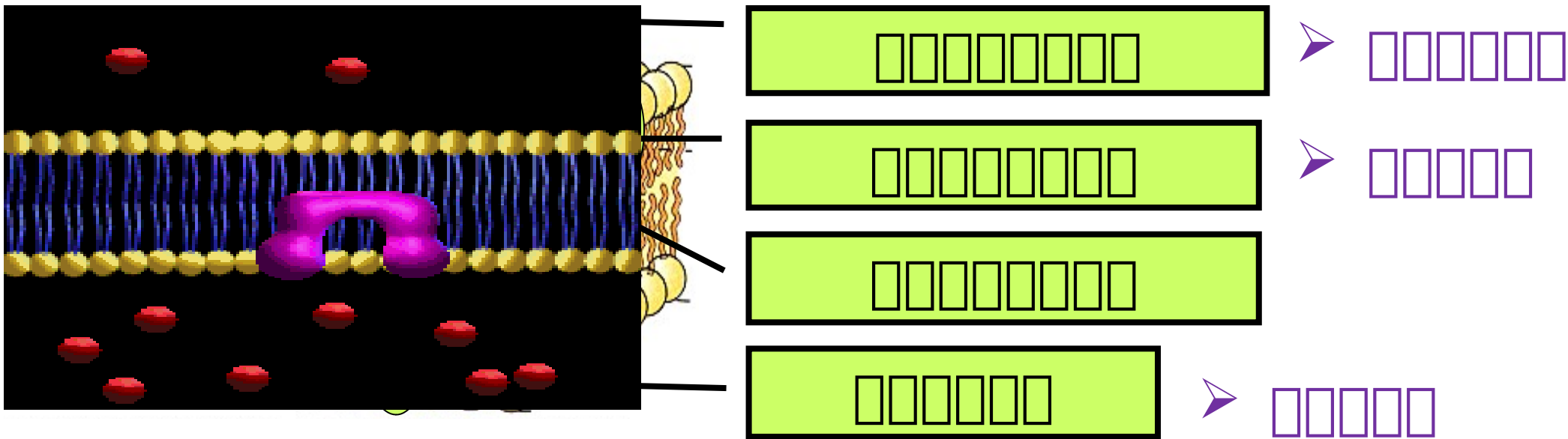
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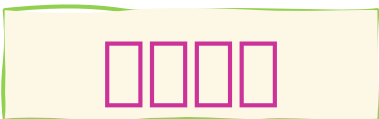
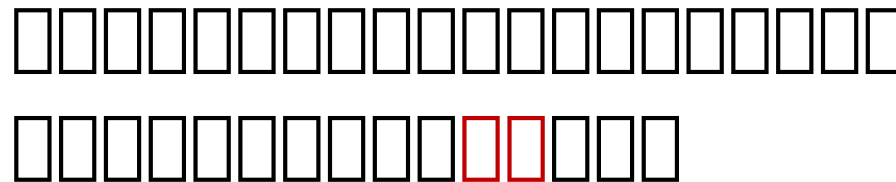
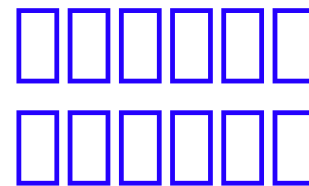
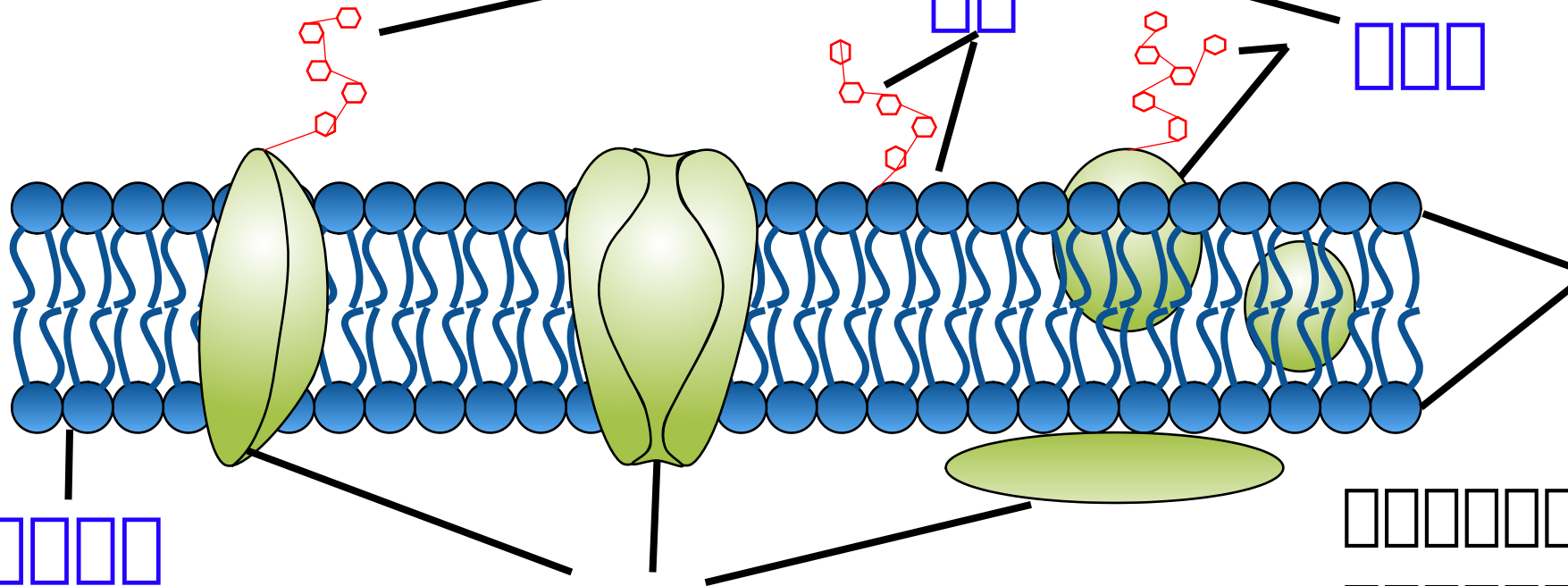
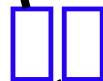
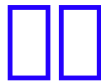
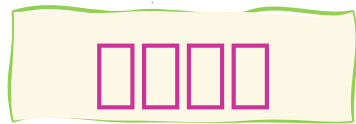
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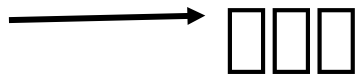
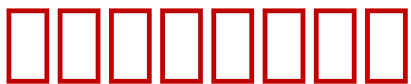
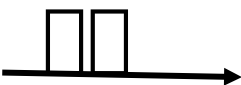
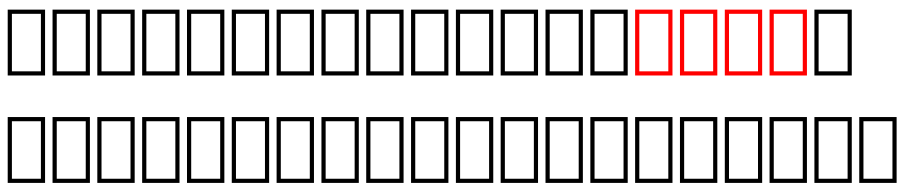
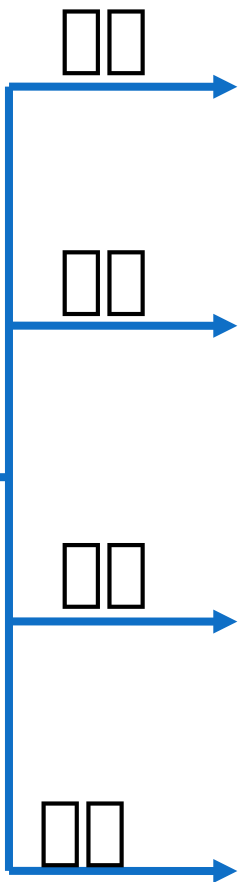
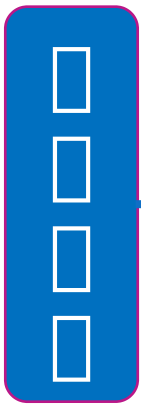
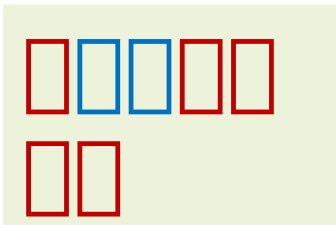
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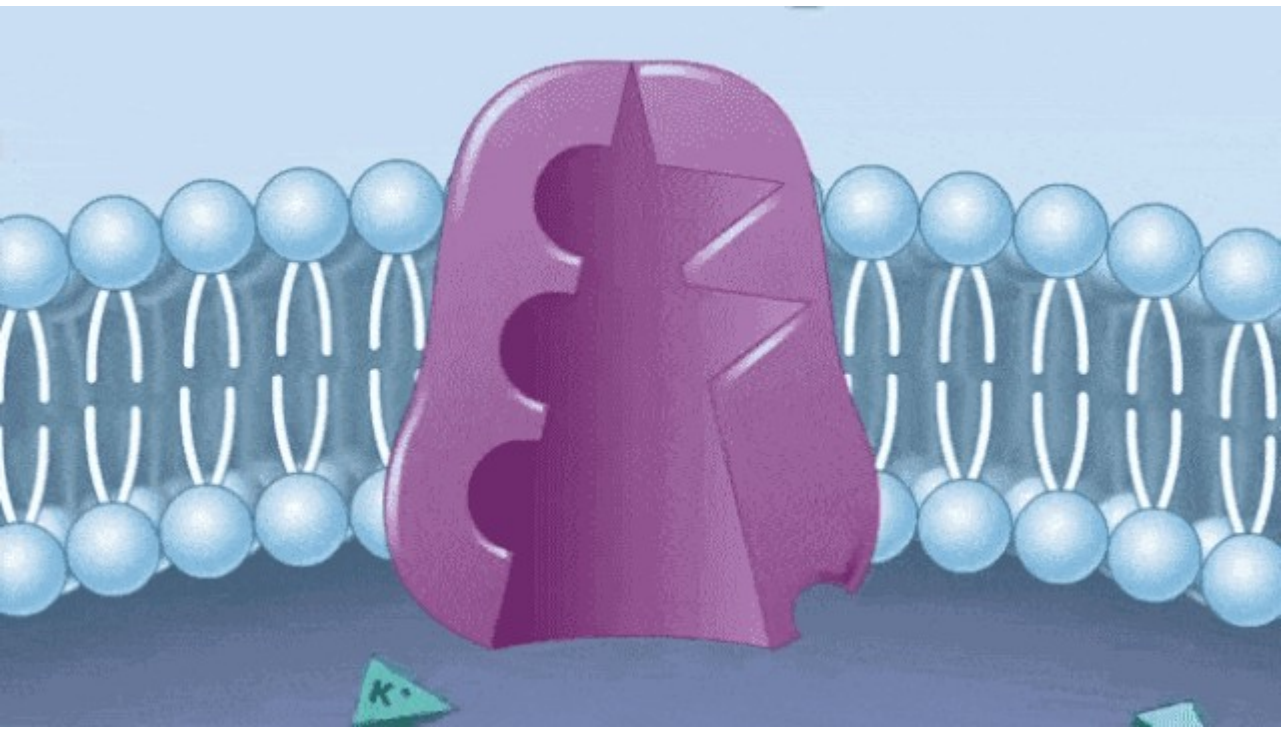
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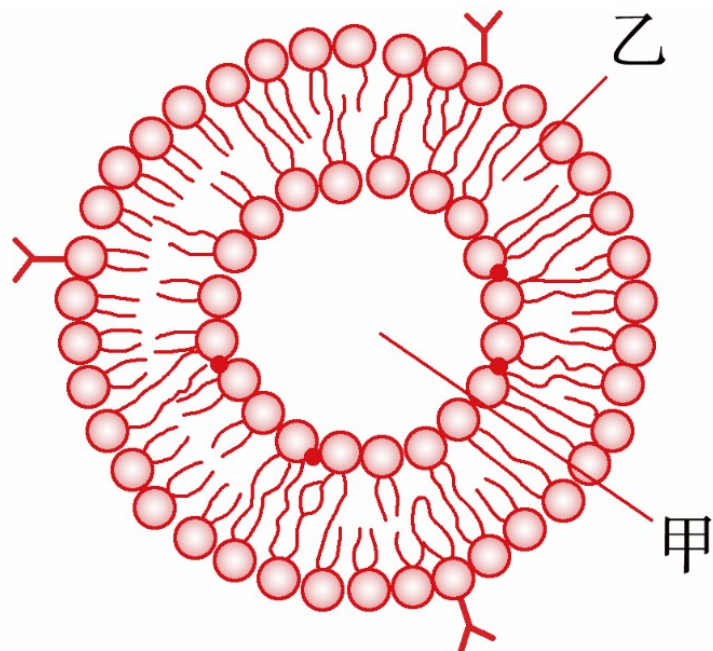
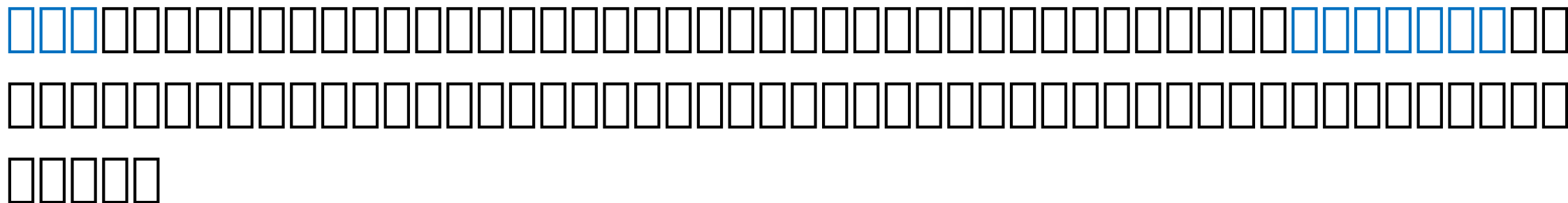
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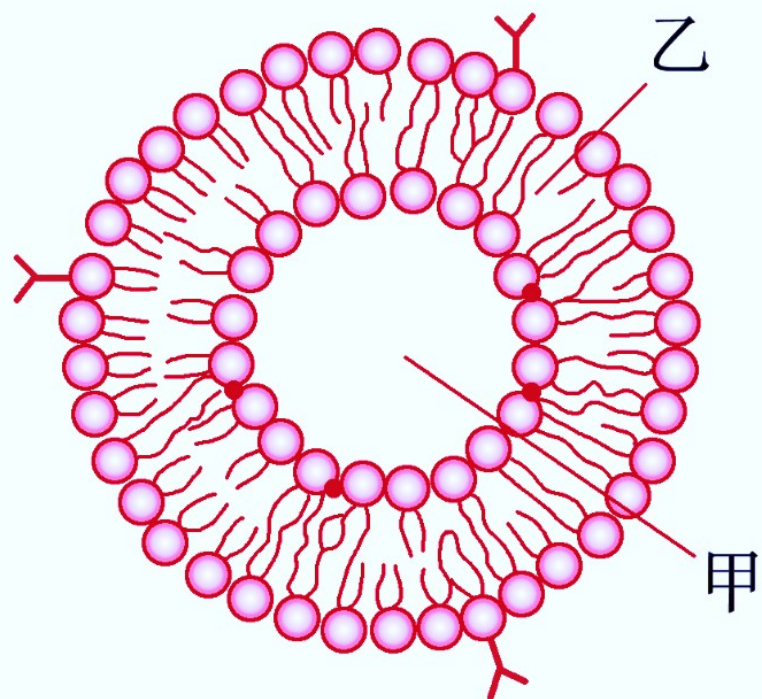
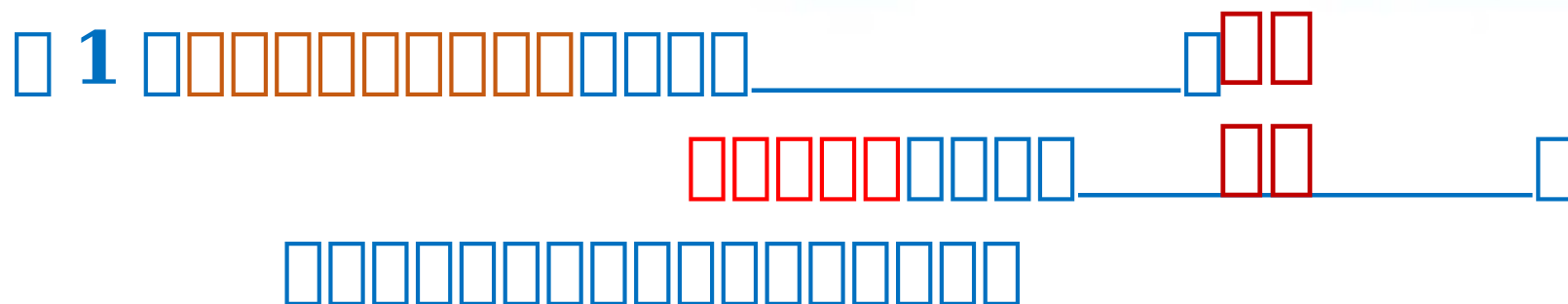
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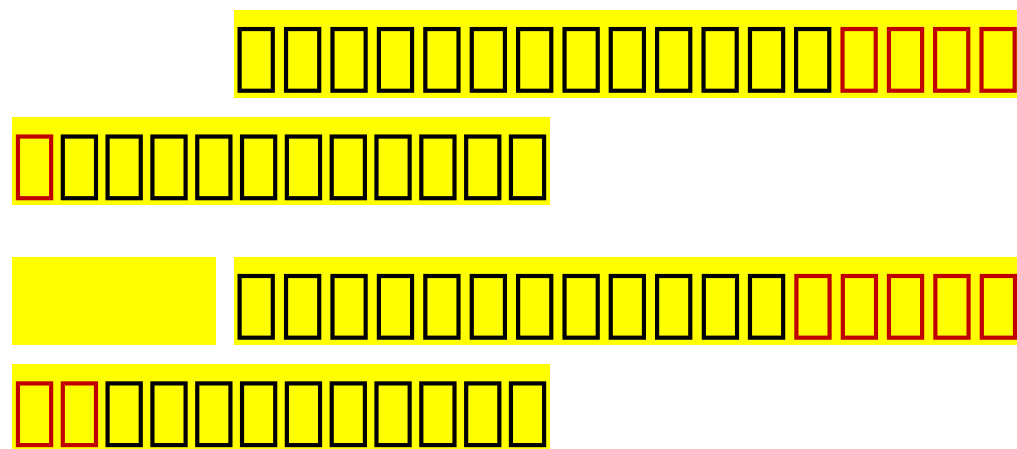
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-  胆固醇
-  抗体
-  可变脂类



- 胆固醇
- 抗体
- 可变脂类



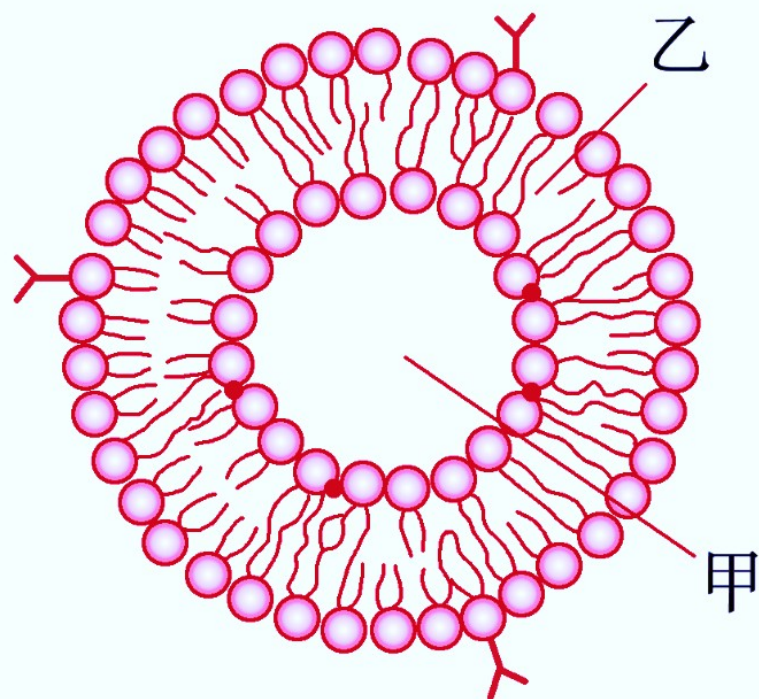




2 细胞膜的组成成分

细胞膜的组成成分

3 细胞膜的结构模型



胆固醇  
抗体  
可变脂类

细胞膜的组成成分

细胞膜的组成成分

